

### ABSTRACT

The present invention describes the isolation and purification of histidine-tagged functional portions of intimin (his-tagged intimin or his-intimin), a protein associated with the ability of certain strains of pathogenic bacteria to adhere to epithelial cells. The invention further describes the use of intimin as an antigen to promote a protective immune response. In addition, the invention describes the combination of intimin with one or more other antigens and administration of the combination to promote a protective immune response against intimin and the one or more antigens.

One aspect of the invention is the administration of intimin to target specific epithelial cells to promote a protective immune response to intimin proteins. Additional aspects of the invention include the use of intimin or intimin combined with one or more antigens and administration of the combination to target gastrointestinal mucosa and stimulate an immune response. Additionally, the invention describes administration of the combination of intimin combined with drugs, to provide a means for targeted delivery of drugs to specific epithelial cells. Other aspects of the invention include the production of antibodies directed against his-intimin and methods of using such antibodies to provide passive immune protection, and in an assay system.